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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/671,971 | 09/25/2003 | David W. Gish | 42P17016 | 8875 |

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EXAMINER

ZAMAN, FAISAL M

ART UNIT PAPER NUMBER

2112

DATE MAILED: 04/03/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | |
|------------------------------|------------------------|---------------------|--|
| Office Action Summary | Application No. | Applicant(s) | |
| | 10/671,971 | GISH ET AL. | |
| | Examiner | Art Unit | |
| | Faisal Zaman | 2112 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 March 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-17 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 March 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Specification

1. The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required: There is no mention in the specification of an article comprising a medium storing instructions, as recited in Claims 15-17.
2. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

Drawings

3. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference character(s) not mentioned in the description: Figure 2, item 200, and Figure 3, item 300. Corrected drawing sheets in compliance with 37 CFR 1.121(d), or amendment to the specification to add the reference character(s) in the description in compliance with 37 CFR 1.121(b) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the

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immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

4. The drawings are objected to because "black boxes" in Figure 3 (items 302, 304, and 306) should be accompanied with text labels describing what each "black box" is. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. **Claims 1-4, 6, 7, 9, 10, and 14** are rejected under 35 U.S.C. 102(e) as being anticipated by Kato (U.S. Patent No. 6,961,793).

Regarding Claim 1, Kato discloses a method for arbitrating a resource comprising:

Setting n weight values for n bidders (Column 5, lines 5-7; Column 6, lines 13-16; where the “basic priority data” is equivalent to the n weight values and “plurality of bus masters” is equivalent to the n bidders);

Setting n accumulator values for n bidders (Column 5, lines 7-13; Column 6, lines 16-20; where the “arbitration priority data” for the plurality of bus masters is equivalent to the “ n accumulator values for n bidders”); and

Granting one of the n bidders to receive access to the resource based at least in part on the accumulator value (Column 5, lines 13-23; Column 6, lines 20-25), and then decrementing the selected bidder’s accumulator value (Column 5 line 66 – Column 6 line 5; also Column 10 line 57 – Column 12 line 6, or Column 12 lines 7-60).

Regarding Claim 2, Kato discloses adjusting the accumulator values (ie. the arbitration priority data) of the remaining bidders based at least in part on the range of values (Column 5 line 56 – Column 6 line 5; Column 10 line 57 – Column 12 line 6).

Regarding Claim 3, Kato discloses wherein the weight values (ie. the basic priority data) are initially set according to a priority of the bidder (ie. the bus master) (Column 8, lines 50-53).

Regarding Claim 4, Kato discloses wherein the accumulator values (ie. the arbitration priority data) are initially set to a midpoint of a range (Column 5, lines 5-13).

Regarding Claims 6 and 7, all the same elements of Claim 1 are listed, but in apparatus form rather than method form. Therefore, the supporting rationale of the rejection to Claim 1 applies equally as well to Claims 6 and 7.

Regarding Claims 9 and 10, all the same elements of Claim 3 are listed, but in apparatus form rather than method form. Therefore, the supporting rationale of the rejection to Claim 3 applies equally as well to Claims 9 and 10.

Regarding Claim 14, Kato discloses wherein the apparatus is a chipset (Figure 1, item 40, Column 1, lines 25-31).

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. **Claims 5 and 8** are rejected under 35 U.S.C. 103(a) as being unpatentable over Kato.

Regarding Claim 5, Kato does not expressly disclose wherein the range of values is based on a quartile, the accumulator value is incremented by one if the accumulator value is within 76-99% of the range, the accumulator value is incremented by two if the accumulator value is within 51-75% of the range, the accumulator value is incremented by three if the accumulator value is within 26-50% of the range, the accumulator value is incremented by four if the accumulator value is within 0-25% of the range.

However, Kato teaches wherein the accumulator values (ie. the arbitration priority data) of each of the bidders (ie. the bus masters) is increased if the accumulator values is not at the highest value at the time of the arbitration, based on an "oldest bus acquiring master priority system" (see Column 12, lines 7-60).

Accordingly, it would have been obvious to one of ordinary skill in the art at the time the invention was made that the use of a quartile priority system as disclosed in

Claim 5 would have been advantageous for use in the arbitration system of Kato, for the purpose of having a more efficient and accurate bus prioritization system.

Regarding Claim 8, all the same elements of Claim 5 are listed, but in apparatus form rather than method form. Therefore, the supporting rationale of the rejection to Claim 5 applies equally as well to Claim 8.

Claim Rejections - 35 USC § 103

9. **Claims 11-13** are rejected under 35 U.S.C. 103(a) as being unpatentable over Kato in view of Applicant's Admitted Prior Art (hereinafter "AAPA").

Kato discloses the apparatus of Claim 6 as described above.

Kato does not expressly disclose wherein the bidder is either one of a modem, keyboard, video controller, serial port, or PCMCIA card, SONET interface, Ethernet Interface, content processor, encryption device, or compression device; or wherein the resource may be an interconnect bus, memory unit, or output buffer; or wherein for a peer-to-peer communications system, the bidder is also a resource.

In the same field of endeavor (e.g. bus access arbitrating methods), AAPA teaches wherein the bidder is either one of a modem, keyboard, video controller, serial port, or PCMCIA card, SONET interface, Ethernet Interface, content processor, encryption device, or compression device; wherein the resource may be an interconnect bus, memory unit, or output buffer; and wherein for a peer-to-peer communications system, the bidder is also a resource (Page 2, paragraph 0002).

Accordingly, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have combined AAPA's teachings of bus access arbitrating methods with the teachings of Kato, for the purpose of increasing efficiency and fairness in bus access arbitration (see AAPA, Page 2, paragraph 0003). Kato also provides motivation to combine by stating it is an object of the invention to provide a bus arbiter, in which it is possible to efficiently arbitrate bus access requests with a simple structure.

Claims 15-17 are directed to an article comprising a medium storing instructions that, when executed result in the method of Claims 1-5. Kato teaches the method of Claims 1-5, as described above. Therefore, Kato also teaches the article comprising a medium storing instructions of Claims 15-17.

Prior Art of Record

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Arimilli et al. (U.S. Patent No. 5,935,234) discloses a method and system for controlling access to a shared resource in a data processing system utilizing pseudo-random priorities. Gehman (U.S. Patent No. 6,073,132) discloses a priority arbiter with shifting sequential priority scheme. Cheng (U.S. Patent No. 6,138,197) discloses an apparatus and method for limit-based arbitration scheme. Liu et al. (U.S. Patent No. 6,246,256) discloses a quantized queue length arbiter. Jeddeloh (U.S. Patent No. 6,363,445) discloses a method of bus arbitration using requesting device

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bandwidth and priority ranking. Chong (U.S. Patent No. 6,629,177) discloses arbitrating requests on computer buses. Takashi (JP10-254823) discloses a bus arbitration device which stores variable weight values.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Faisal Zaman whose telephone number is 571-272-6495. The examiner can normally be reached on Monday thru Friday, 8 am - 5:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rehana Perveen can be reached on 571-272-3676. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

fmz


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3/16/06